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ATTORNEY DOCKET NO.
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PATENT APPLICATION
09/866,205

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Shea CHEN, et al.
Serial No.: 09/866,205
Filing Date: May 25, 2001
Group No.: 2833
Examiner: Renee S. LUEBKE
Title: MEMBRANE FOR MICRO-ELECTRO-
MECHANICAL SWITCH, AND METHODS
OF MAKING AND USING IT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

I hereby certify that the enclosed documents are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. 1.10 on this 30th day of September, 2003, addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Walter J. Jones

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RESPONSE UNDER 37 C.F.R. §1.111

This Response is a reply to the Office Action mailed on August 11, 2003. (Please see following pages).

REMARKS

Claims 1-2, 4, 6-11, 14-16, 18-21 and 25-38 are present in the application. In view of the remarks which follow, reconsideration is respectfully requested.

Patentable Subject Matter

Noted with appreciation is the indication in the Office Action that Claims 10, 20 and 25-36 have been allowed.

Also noted with appreciation is the indication in the Office Action that Claims 14, 21 and 37-38 are each directed to allowable subject matter, and would be allowed if rewritten in independent form. Claims 14, 21 and 37-38 depend from independent claims that are believed to be allowable for reasons discussed later. Accordingly, it is believed to be unnecessary to separately place Claims 14, 21 and 37-38 in independent form at this time.

Comment on Statement for Reasons for Allowance

In the middle of page 3, the Office Action offers a statement by the Examiner of reasons why Claims 10, 14, 20-21 and 37-38 are considered to recite allowable subject matter. Applicants agree that these claims recite allowable subject matter. However, Applicants do not agree in all respects with the statement of reasons for allowance. For example, Applicants respectfully submit that the Examiner's stated reason should not be interpreted to mean that there are no other reasons which separately and independently support the allowability of the independent claims and/or the dependent claims. Further, the Examiner's statement attempts to paraphrase some of the claim language. Applicants believe

that the scope and interpretation of the claims should focus on the terminology and language selected by Applicants for use in the claims, rather than language selected by the Examiner to attempt to paraphrase certain claim limitations.

Independent Claim 1

Independent Claim 1 stands rejected under 35 U.S.C. §102 as anticipated by Oelsch U.S. Patent No. 4,743,722. This ground of rejection is respectfully traversed, for the following reasons.

Claim 1 recites a switch having a membrane with spaced first and second sections that "each serve as resilient structure capable of yieldably varying in size in a direction lengthwise of said membrane". The Examiner asserts that these first and second sections in Claim 1 are equivalent to the corrugated portions 7 and 8 of the membrane 3 which is shown in Figure 1 of Oelsch. In particular, on page 2 of the Office Action, the Examiner states that the portions 7 and 8 of Oelsch "serve as resilient structure (as required in order to perform their required function) *capable of yieldably varying in size*". However, Applicants respectfully disagree.

More specifically, while a quick glance at Figure 1 of Oelsch may suggest that the portions 7 and 8 each have this resilient capability, Oelsch actually teaches just the opposite. In more detail, the switch shown in Figure 1 of Oelsch is a manually operated switch. The switch is operated when a fingertip manually presses the center of the membrane 3 downwardly, so that the contact 6 moves toward the contact 5. As explained from line 68 in column 2 through line 2 in column 3, and at lines 13-14 of column 3, the purpose of the portions

7 and 8 is to keep the center of the membrane 3 arched upwardly when the switch is not actuated.

The Office Action asserts that the portions 7 and 8 must necessarily be resilient in order to perform their intended function. However, it is not clear that the portions 7 and 8 actually need to be resilient in order to perform their intended function of keeping the center of the membrane arched upwardly. In fact, at lines 39-43 of column 3, Oelsch expressly states that, when the switch is manually actuated, the portions 7 and 8 "do not practically change their shape in this process, and have no substantial influence on the switching behavior". Stated differently, the membrane 3 of the Oelsch switch has two operational positions (actuated and deactuated), and Oelsch specifically states that the portions 7 and 8 do not experience any significant change in shape as the membrane 3 moves between these two positions. This necessarily means that the portions 7 and 8 of the Oelsch switch do not resiliently and yieldably vary in size in a direction lengthwise of the membrane.

One other consideration discussed by Oelsch is that, if the Oelsch membrane 3 absorbs moisture, it may increase slightly in length. As clearly explained at lines 3-7 in column 3, this results in the center of the membrane being forced to arch further upwardly, as indicated by broken lines in FIGURE 1 of Oelsch. Stated differently, the portions 7 and 8 of the membrane 3 do not resiliently flex in order to absorb the expansion and thus maintain the center of the membrane 3 at its original position. Instead, the portions 7 and 8 remain rigid, and force the center of the membrane to flex further upwardly.

Accordingly, even though the Office Action asserts that the portions 7 and 8 are resilient and necessarily flex in order to perform their required function, this assertion is directly contrary to what is actually taught in Oelsch. In particular, as discussed above, Oelsch expressly teaches that the portions 7 and 8 do not experience any resilient change in shape during any operational mode of the Oelsch switch. In this regard, as noted above, lines 39-43 of column 3 in Oelsch emphasize that the portions 7 and 8 experience no significant change in shape as the membrane 3 moves between actuated and deactuated positions, and lines 3-7 in column 3 emphasize that the portions 7 and 8 do not experience any significant change in shape when the length of the membrane increases due to absorption of moisture.

Figure 2 of Oelsch is a top view of the same switch that is shown in Figure 1. With reference to the circular recess or chamber 4, it will be noted that the corrugated portions 7 and 8 of the membrane 3 each extend from one side of the chamber 4 to the other side thereof, and beyond. Thus, to the extent that any corrugation of the type shown at 7 or 8 will typically have a degree of inherent stiffness, and to the extent that the portions 7 and 8 are also each fixedly secured against any movement at locations disposed on opposite sides of the chamber 4, it is possible to recognize the likely reason why the portions 7 and 8 experience no significant movement or change in shape during any operational mode of the Oelsch switch.

As explained in MPEP §2141.02, "A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the

claimed invention" (emphasis in original). To the extent that the Oelsch patent expressly states that the portions 7 and 8 of the membrane 3 do not undergo any significant change in shape in any operational mode, there is absolutely no basis for the assertion in the Office Action that the portions 7 and 8 "serve as resilient structure (as required in order to perform their required function) *capable* of yieldably varying in size".

As emphasized in MPEP §2131, anticipation under §102 requires that a reference must disclose each and every element recited in the rejected claim. Since Oelsch does not disclose each and every element recited in Claim 1, and in fact teaches directly away from a feature recited in Claim 1, it is respectfully submitted that Claim 1 is not anticipated under §102 by Oelsch. Claim 1 is therefore believed to be allowable, and notice to that effect is respectfully requested.

Independent Claim 15

Independent Claim 15 stands rejected under 35 U.S.C. §103 as obvious in view of a combination of teachings from Oelsch and Randall U.S. Patent No. 6,100,477. This ground of rejection is respectfully traversed, for the following reasons.

Claim 15 recites a method of switching a switch, including operation of the switch in response to an applied voltage. The §103 rejection relies primarily on the Oelsch patent, but since the Oelsch switch is a manual switch, the rejection turns to Randall for a teaching of the idea of operating a switch in response to an applied voltage. In

particular, the rejection asserts that it would be obvious to operate the switch of Oelsch in response to an applied voltage. But aside from this, the §103 rejection of Claim 15 relies on the Oelsch patent.

Claim 15 includes a recitation of "configuring said membrane to include spaced first and second sections. . . that each serve as resilient structure which is capable of yieldably varying in size in a direction lengthwise of said membrane". For the same basic reasons discussed above in association with Claim 1, it is respectfully submitted that the Oelsch patent does not teach or suggest any comparable structure, and in fact expressly teaches away from this feature.

For the foregoing reasons, it is respectfully submitted that there is no combination of teachings from Oelsch and Randall which would result in subject matter comparable to that recited in Claim 15. It is therefore respectfully submitted that Claim 15 is not rendered obvious under §103 by Oelsch and Randall. Claim 15 is therefore believed to be allowable, and notice to that effect is respectfully requested.

The §103 rejection does not propose any modification to the portions 7 and 8 of Oelsch. Nevertheless, for completeness, Applicants respectfully point out that it would not be obvious to make any modification to the portions 7 and 8. In particular, since the Oelsch patent states that the portions 7 and 8 have been intentionally configured so that they do not experience any significant change in shape in any operational mode, and since this characteristic of the portions 7 and 8 is integral to the principle of operation of

the Oelsch switch, it is respectfully submitted that it would not be obvious to modify the portions 7 and 8 so as to make them resilient and capable of yieldably varying in size, because such a modification would change a fundamental principle operation of the Oelsch switch. As pointed out in MPEP §2143.01, a proposed modification to a prior art device is not obvious under §103 if it changes the principle of operation of that device.

Dependent Claims

Claims 2, 4, 6-9 and 11 and Claims 16-18 respectively depend from Claim 1 and Claim 15, and are also believed to be allowable over the art of record, for example for the same reasons discussed above with respect to Claims 1 and 15, respectively.

Fourth Information Disclosure Statement

Applicants are filing a Fourth Information Disclosure Statement simultaneously with this Response. The IDS should in theory arrive at the desk of the Examiner at the same time as this Response. But if it does not, Applicants respectfully request that the Examiner look for the IDS.

Conclusion

Based on the foregoing, it is respectfully submitted that all of the pending claims are fully allowable, and favorable reconsideration of this application is therefore respectfully requested. If the Examiner believes that examination of the present application may be advanced in any

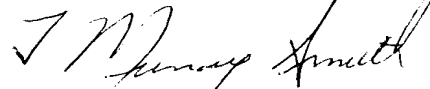
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way by a telephone conference, the Examiner is invited to
telephone the undersigned attorney at (214) 953-6684.

Respectfully submitted,
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Date: September 30, 2003

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Enclosures: Fourth Information Disclosure Statement,
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